



## SPECIFIC DESIGN GUIDELINES

Pedestrian areas and facilities should be designed at a minimum to be safe. The following guidelines cover specific pedestrian facilities and amenities. There are items which are recommended in a facility for it to be **safe** for pedestrians (see this page). There are items that make an area more **comfortable** and more likely that pedestrians will use it willingly (see Page 48). Lastly, there are items that make an area a **destination**, a place that people will make a point to walk or bike or ride there (see Page 49).

### Safe Facility Minimums

- a 6-foot wide walkway, visually and functionally separate from the path of vehicles
- a walkway surface that is smooth, slip-resistant and without cracks, indents, or steep grades
- clear of protruding objects
- walkways that go around driveway crossings
- all intersection corners and changes in elevation have ramps
- the walkway is physically separated from vehicular traffic by at least one vertical or horizontal element
- at least 1 footcandle of lighting at intersections and crosswalks
- pedestrian crossings with vehicular traffic have a defined crosswalk
- traffic signals are timed for a walking speed of 2.8 feet per second
- minimum 50% shade coverage along the route and at gathering nodes

**NOTE:** If the project is a new build, there are design elements that should be built to the comfortable level to meet the highest standards of ADAAG. These include driveway crossings (walkway fully behind flared and sloped portions of the driveway), directional ramps at intersections (two per corner, one for each crosswalk), approved detectable warnings at all transitions between walkways and streets, and cut-through or ramped medians.

## Comfortable Facility Minimums

- a 7- to 12-foot **wide** walkway, visually and functionally separate from the path of vehicles
- a walkway **surface** that is smooth, slip-resistant and without cracks, indents, or steep grade
- **clear** of protruding objects
- walkways are flat and straight and don't meander around **driveway crossings** and driveways crossings are limited
- all changes in elevation have **ramps** and intersection corners have curb cuts for both directions or one broad cut serving both crosswalks
- the walkway is **physically separated** from vehicular traffic by at least two vertical or horizontal element
- at least 1 footcandle of **lighting** at intersections and crosswalks and lights are spaced so there is spot to spot lighting
- pedestrian crossings with vehicular traffic have a defined **crosswalk** and may also include an activated signal, median refuge or other such element
- **traffic calming** improvements are introduced to slow vehicular speeds in appropriate areas off arterial streets
- **traffic signals** are timed for a walking speed of 2.8 feet per second, and there are walk/don't walk signs, auditory signals or other such elements
- minimum 60% **shade** coverage along the route and at gathering nodes

## Destination Facility Minimums

- **a 20-foot wide walkway, visually and functionally separate from the path of vehicles**
- **a walkway surface that is smooth, slip-resistant and without cracks, indents, or steep grade and one that adds character to the architectural theme**
- **clear of protruding objects**
- **the walkway is in an environment with a pedestrian scale and pleasing building height ratio**
- **there are no driveway crossings**
- **all changes in elevation have ramps and there are no intersections with vehicles**
- **the walkway is physically separated from vehicular traffic by at least four vertical or horizontal element**
- **at least 1 footcandle of lighting that is generally continuous**
- **pedestrian crossings with vehicular traffic have a defined crosswalk**
- **traffic signals are timed for a walking speed of 2.8 feet per second**
- **minimum 75% shade coverage along the route and at gathering nodes**
- **two to three seating opportunities per block**
- **site furnishings that could include trash receptacles, telephones, drinking fountains, or restrooms**
- **wayfinding and direction signage**
- **facilities include public art**
- **pocket parks and other planting opportunities**
- **transit stations with plenty of amenities**

# WIDTH

For a pedestrian area to be safe, it must have a defined walkway, visually and functionally separate from the path of vehicles. That does not necessarily mean paved in concrete, though to be safe, it must meet ADA guidelines for smoothness (see section on Surface/Texture).

## Safe

Provide a minimum of **6 feet** (1.8m) clear for a safe walkway width. This will accommodate pedestrians moving in both directions, as a walking person requires a minimum walkway width of 2.5 to 3 feet (0.8 to 0.9m) and a person in a wheelchair requires at least 3 feet (0.9m). Additional width should be provided if there will be landscaping or site furnishings (see the Clearance Section for additional information).

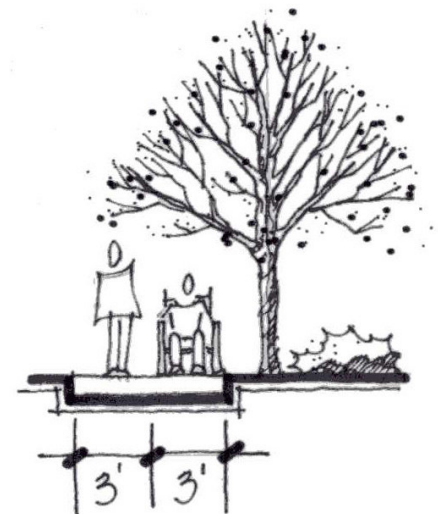
## Comfortable

Provide a minimum width of **7 to 12 feet** (2.1m to 3.6m) for a comfortable walkway for multiple users.

## Destination

Provide a minimum width of **20 feet** (6.1m) for an effective walkway for areas that will be a destination.

Shared-use paths should be at least **10 feet** wide (3m) to accommodate a combination of walkers, bikers, skaters, and other users. Signing on shared-use paths is essential so people know to expect other types of users. Refer to the signage recommendations in the AASHTO *Guide for the Development of Bicycle Facilities*, Page 53.



*Walkways should provide sufficient passing room.*



*Too Narrow.*



*8' walkway.*



*10' plus walkway.*



## SURFACE/TEXTURE

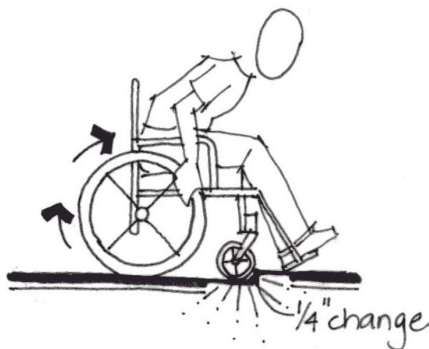
### Resources

#### Accessible Route [4.3]

<http://www.access-board.gov/adaag/about/4.3.htm>

#### Chapter 4. Sidewalk Corridors, 4.3 Sidewalk Surfaces

<http://www.fhwa.dot.gov/environment/sidewalk2/sidewalks204.htm>



*Verticals breaks should be a 1/4\"*

### Safe

A safe sidewalk surface should be even, without bumps, cracks or indents greater than 1/4 inch so as not to catch the tip of a cane or front casters of a walker or wheelchair. The surface should also be firm, stable, slip-resistant, and sloped for drainage, but not more than a 12:1 slope ratio.

A safe sidewalk should contrast in color or tone from the surrounding area. The walkway can be a different material, texture, or color to distinguish it from the vehicular traffic area. It does not have to be concrete or asphalt. A universally accessible surface, as defined by the ADA, may be composed of such materials as compacted earth, stabilized decomposed granite, playground surfacing, asphalt, brick, or concrete. Walkway edge treatments using accent paving are a good option to provide aesthetic treatments rather than having the whole walkway width textured.

### Comfortable

To be comfortable, minimize long travel distances over aggregate concrete, pavers, or other materials that are rough or bumpy in areas where an alternative, smooth surfaced walkway is not an option.

### Destination

Decorative sidewalk surfaces increase the attractiveness of the facility and can add to a character or architectural theme that defines a destination facility.



*Avoid uneven sidewalks.*



*Avoid rough paving textures.*



*Colorful paving at destination.*

## CLEARANCE

### Safe

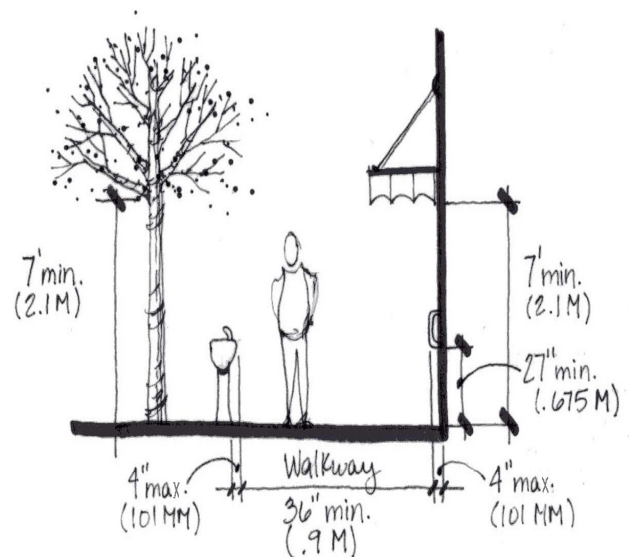
To be safe, a walkway must meet the recommendations defined in the Guide for the *Planning, Design, and Operation of Pedestrian Facilities* published by AASHTO. While site furnishings, street vendors, and outdoor dining areas are desired for the variety and interest they add to pedestrian areas, they should not be designed or located where they protrude into the primary pedestrian route. Protrusions are hazardous especially to those pedestrians with low vision. Specific guidelines include:

*A clear circulation path of at least 36 inches (.9m) should be maintained at all times, free of any obstacles or protruding objects. (Thirty-six inches should only be used for short distances. This document recommends a minimum of 6 feet wherever possible.)*

*Wall mounted objects shall not protrude more than 4 inches (100mm) from a wall when located between 27 inches (.675m) and 7 feet (2.1m) above the walkway.*

*Single post mounted objects shall not overhang more than 4 inches (100mm) per side of post when located between 27 inches (.675m) and 7 feet (2.1m) above the walkway.*

*The lowest edge of an object mounted on multiple posts having a clear distance between adjacent posts greater than 1 foot (.3m) shall be no higher than 27 inches (.675m) or no lower than 7 feet (2.1m).*



Walkway clearance minimums.



Horizontal clearance too narrow.



No circulation route around pole.

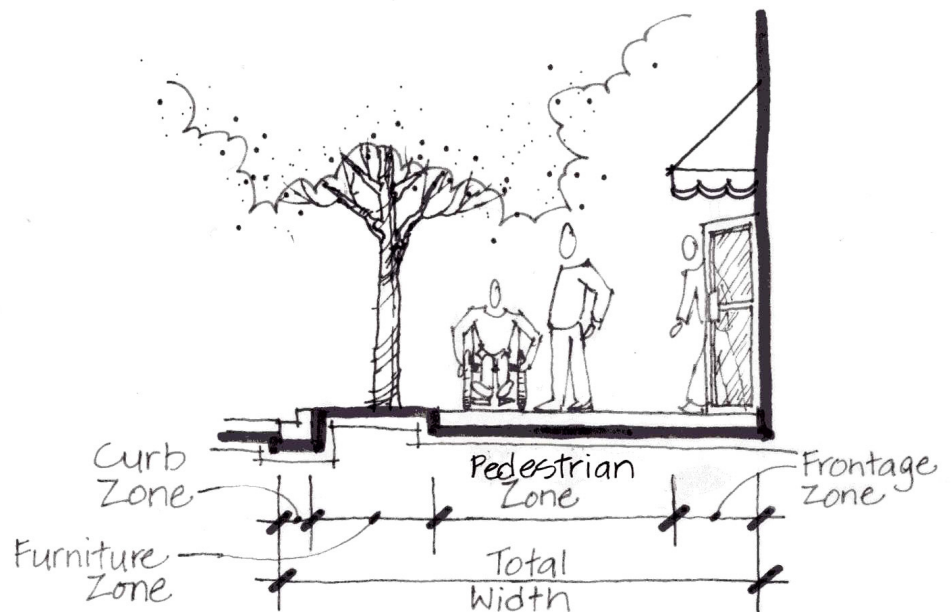


Amenities are clear of circulation path.

## CLEARANCE (con'td.)

*Trees should be trimmed up so that the branches are at least 7 feet (2.1m) above the walkway.*

The AASHTO guidelines, as well as others, define this clear circulation path as the *pedestrian zone* or *through-pedestrian zone* and recommend widths of 30 to 60 inches (see graphic). Between the pedestrian zone and the street is the *furniture zone* where trees, benches, mailboxes and other amenities are often located. The width of this zone ranges from 24 to 48 inches. Between the pedestrian zone and the building face is the *frontage zone* or *shy zone*, ranging from 12 to 60 inches wide. This is the area where doors open into and people stop to look in shop windows. In non-urban areas where the walkway is adjacent to open space, the frontage zone is not needed.



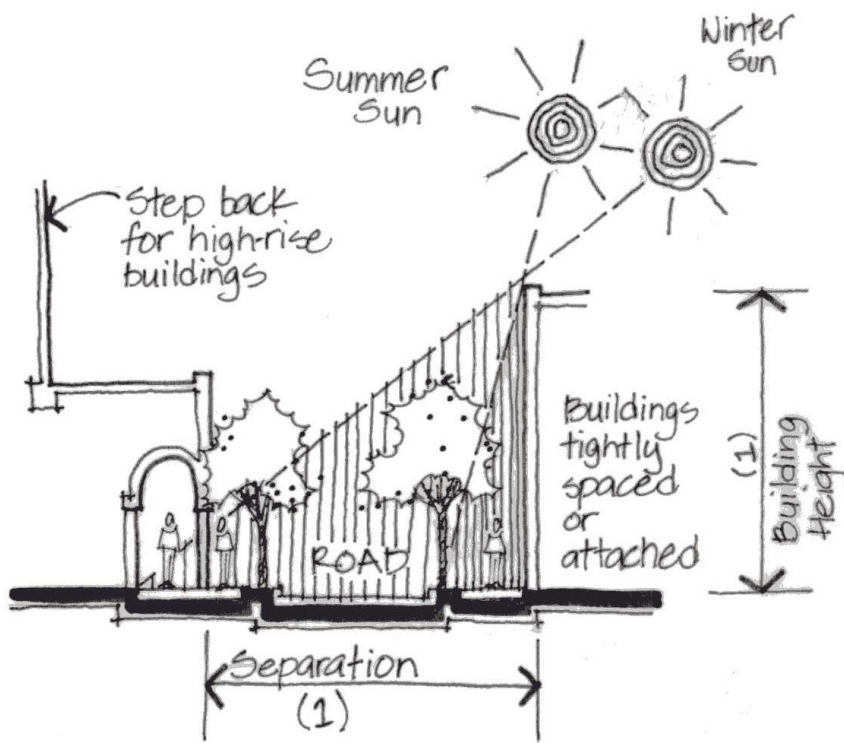
*Walkway pedestrian zones.*

## BUILDING FACADES

While a building-height to openings-between-buildings ratio is not a **safety** concern, this ratio is a factor in making a walkway **comfortable** and is critical in making a pedestrian area a **destination**, in areas adjacent to buildings.

To create a sense of human scale in the pedestrian spatial volume, the street and walkway width should be directly proportional to the height of the buildings. A building-height to openings-between-buildings ratio in pedestrian areas adjacent to building should be as near to 1:1 as feasible.

The scale decisions should be tempered by expected pedestrian volumes and the knowledge that street crossings should be narrowed for safety and comfort. In addition to providing human scale proportions, building spatial volume can provide shade to pedestrians. A stepped-back approach is also acceptable, but trees must be added to provide shade.



*Building separation ratio.*



## DRIVEWAY CROSSINGS

### Resources

#### ***Designing Sidewalks and Trails for Access: Part II of II Best Practices Design Guide***

<http://www.fhwa.dot.gov/environment/sidewalk2/>

Pedestrians using wheelchairs or walkers and pedestrians with strollers need a relatively flat walking surface. The side flares and cross slopes of a driveway apron can cause tipping or a loss of balance. The preferred American with Disabilities Act Accessibility Guidelines (ADAAG) design for driveway crossing is to place the driveway crossing completely out of the path of the walkway. Acceptable alternatives incorporate the driveway into the walkway but provide a clear, flat space behind the driveway apron.

### Safe

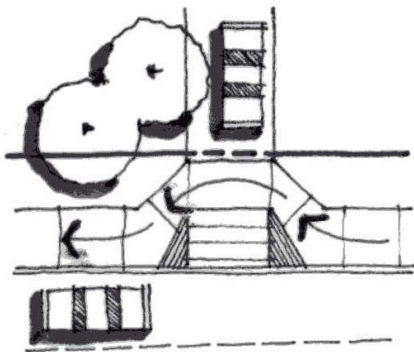
A safe sidewalk has a level alignment that goes around driveway crossings. For new builds, driveway crossings should be designed to the comfortable level.

### Comfortable

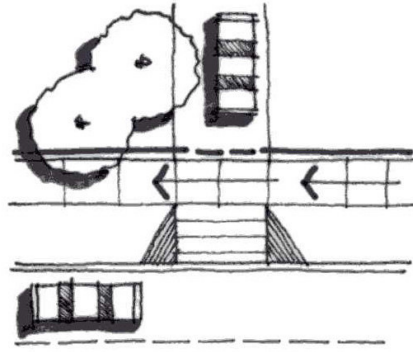
A comfortable sidewalk has limited driveway curb cuts or has shared curb cuts (one driveway per use per street), and the walkway alignment is straight behind the driveway crossings.

### Destination

A destination facility has a minimum number of or no driveway crossings because vehicular traffic is limited or not allowed.



*For a safe level: Walkways go around driveway crossings.*



*For new builds and a comfortable level: Walkways completely avoid driveway crossings.*



*Walkway is behind driveway crossing.*



*Too many driveway crossings and apron flares are hard to maneuver.*



# RAMPS

Ramps provide access between changes in elevation for people using mobility assistive devices, people pulling or pushing strollers, suitcases, or other items. Ramps should meet ADAAG recommendations for slope, gutters, landings, flares, and tactile warnings.

## Safe

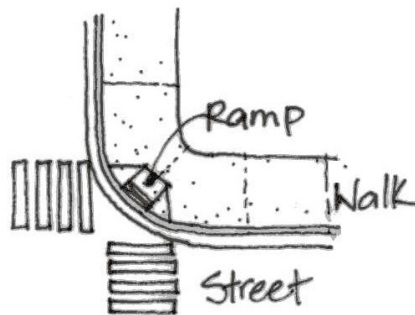
A safe walkway has directional ramps at every intersection corner and wherever there is a change in elevation. These ramps must include the ADAAG recommendations for slope, gutters, landings, flares, and tactile warnings (truncated domes). The tactile warning area shall be a minimum of 24 inches deep and extend the width of the use area. The walkway color must contrast from the surrounding walkway (light to dark or dark to light). For new builds, the minimum should be the comfortable level.

## Comfortable

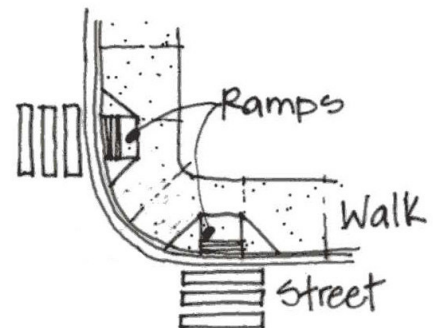
A comfortable intersection has directional ramps on each corner or a shared, broad ramp serving both crosswalks, rather than a ramp located diagonally in the center of the corner that does not provide directional alignment.

## Destination

A destination facility has either no vehicular intersection corners that would require a ramp or a very limited number because vehicular traffic is limited or not allowed.



*For a safe level: A ramp with detectable warning and landing areas.*



*For new builds and comfortable level: Directional ramps with detectable warning.*



*Directional ramps.*



*Tactile warning contrasts from surrounding sidewalk.*

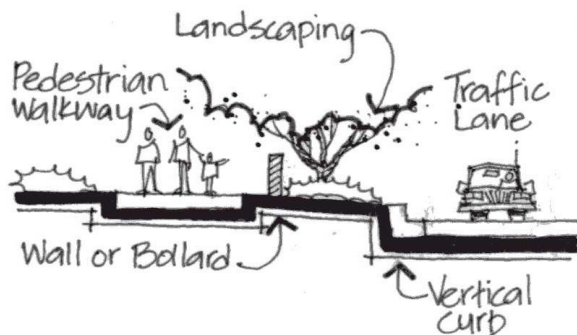
## Resources

***Designing Sidewalks and Trails for Access: Part II of II Best Practices Design Guide***

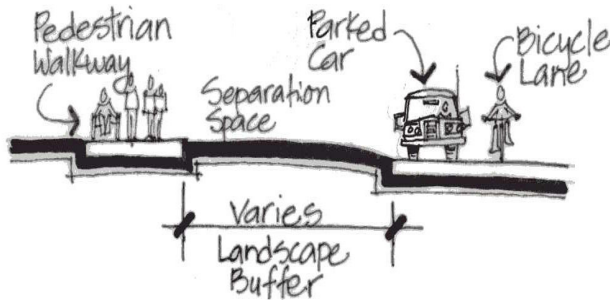
<http://www.fhwa.dot.gov/environment/sidewalk2/>

## PHYSICAL SEPARATION FROM TRAFFIC

A safe pedestrian area is vertically and/or horizontally separated from traffic. Vertical separation can be: curbs, bollards, parking (parallel or perpendicular), or buildings. Horizontal separation can be an on-street bike lane, a non-paved area (preferably landscaped), or landscaping in tree grates or planters.



Types of vertical separation.



Types of horizontal separation.

The separation can be a landscape buffer which also shades the pedestrian and provides human scale. A bike lane or parked cars also provides separation from traffic and provides additional storage areas for cars, or an alternative transportation route.

### Safe

To be safe, a pedestrian area must have at least **one** element of separation (vertical or horizontal) from traffic.

### Comfortable

To be comfortable, it must have at least **two** elements

### Destination

A destination facility must have **four** or more elements of separation.

Listed on the following pages are details for a variety of physical vertical and horizontal separators.

## PHYSICAL SEPARATION FROM TRAFFIC (con'td.)

### VERTICAL SEPARATIONS

#### Curbs

Vertical curbs shall be a 4-inch (0.1m) minimum height to be safe to inhibit cars from climbing curbs. Curbs do not have to be connected to the walkway except at transit stops. Rolled curbs are not recommended because cars can 'jump' the curb easier or park on the sidewalk.

#### Bollards

Bollards can be used as a vertical element to separate pedestrians from traffic.

Minimum height = 42 inches (1.1m)

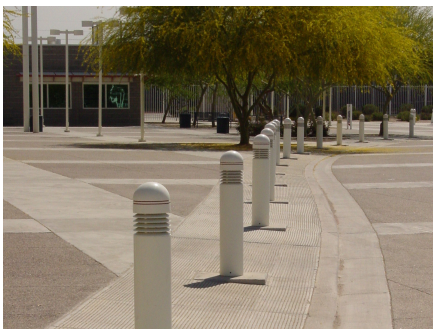
Maximum spacing = 60 inches (1.5m)

#### Protective Barriers

In some situations, protective barriers may be desirable to separate pedestrians from traffic. These are most typically found on bridges or in tunnels.

#### Buildings

Buildings act as a vertical separation in situations where the pedestrian facility is completely, or almost completely, separated from roadways by buildings, such as plazas or pocket parks.



*Bollard separation.*



*Protective barrier used to separate walkway from high volume traffic.*

## PHYSICAL SEPARATION FROM TRAFFIC (con'td.)

### HORIZONTAL SEPARATIONS

In those instances where a horizontal separation is the only option between vehicles and pedestrians, separate pedestrians from traffic by at least 8 feet (2.4m). A 4-foot (1.2m) separation is acceptable in rural neighborhoods with low traffic volumes, approximately less than 1,000 cars per day. When a vertical curb is combined with the horizontal separation, the separation from traffic can be as little as 5 feet (1.5m).

#### Bicycle Lanes

Bicycle lanes provide a buffer between the walkway and moving vehicular traffic. The minimum width for a bicycle lane is 5 feet (1.5m). When used, bike lanes should use AASHTO standards for signing and pavement markings.

#### On-street Parking

Provide on-street parking as a buffer on streets other than arterials or Roads of Regional Significance. Parallel parking is preferred because it tends to slow down roadway traffic and drivers maneuvering in and out of parking stalls are more likely to see pedestrians and bicyclists than when diagonal parking is used. On-street parallel parking is generally a minimum of 8 feet (2.4m) wide.

#### Landscape Buffer

Planters can provide a buffer for pedestrians. The minimum width for a landscape buffer area is 5 feet (1.5m) in order to provide sufficient growing room for plant materials.



*Bicycle lane buffer.*



*On-street parking buffer.*



*Landscape buffer.*

# LIGHTING

Pedestrian level light can be provided by poles shorter than street lights (10 to 15 feet; 3m to 4.6m) or by bollard lights. Lights should be directed downward to prevent night sky pollution and concentrate light where it's needed. Pedestrian level lighting is most appropriate in areas where there is pedestrian activity in early morning, evening, and nighttime hours.

### Safe

Provide a minimum of 1 footcandle of light from grade to 5 feet (1.5m) above the walking surface, between sunset and sunrise, at vehicular intersections, changes in grade, crosswalks, and other similar points of potential conflict.

### Comfortable

Provide a minimum of 1 footcandle of light from grade to 5 feet (1.5m) above the walking surface, between sunset and sunrise, at vehicular intersections, changes in grade, crosswalks, and other similar points of potential conflict. Also provide points of illumination along the walkway so that users can move comfortably between light to light.

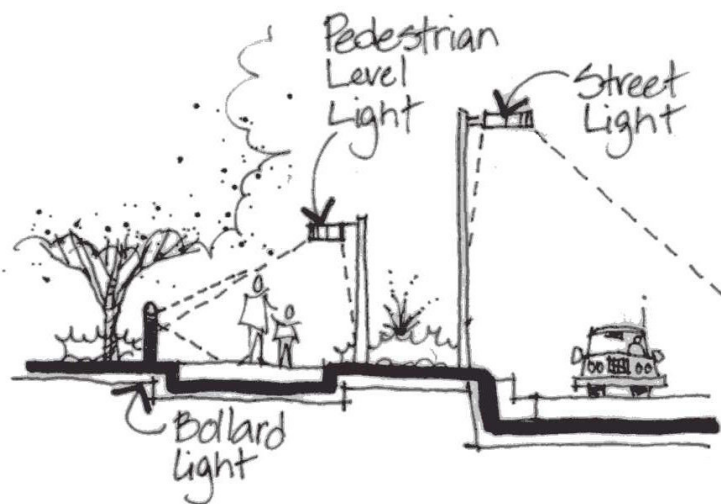
### Destination

A destination facility generally has continuous lighting coverage of 1 footcandle and the lighting fixtures contribute to the thematic character.

## Resources

**International Dark-Sky Association**

<http://www.darksky.org/ordsregs/lchintro.html>



*Pedestrian lighting.*



## CROSSINGS and INTERSECTIONS

### Safe

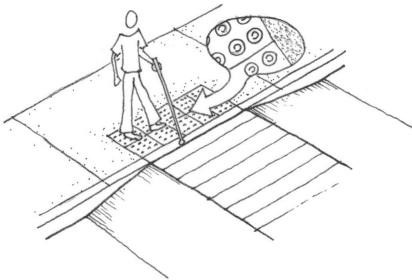
Crosswalks should be placed when warranted and at the safest place to cross a street.

### Comfortable

To be comfortable, the crossing may include an activated signal, be raised, have in-pavement flashing lights, have a sign stating “Watch for Turning Vehicles” or other such feature as those listed below. It should be noted that any traffic control devices must meet the warrant criteria of the MUTCD.

### Stop Signs

Use stop signs at intersections that are on pedestrian routes to slow vehicles where a traffic signal is not warranted (follow the appropriate traffic control standards for the jurisdiction where the facility is located and/or the MUTCD). Collector and arterial street crossings must have stop signs or other crossing aids for pedestrians.



### Speed Tables

Speed tables elevate the entire crosswalk area to the level of the adjacent curbs which causes vehicular traffic to slow down. These also go by the names of: flat top speed humps, trapezoidal humps, speed platforms, raised crosswalks, or raised crossings. Tactile warning devices are of special importance here because there is no curb to define the edge of pavement for pedestrians with low vision.

*Speed tables also need tactile warnings.*

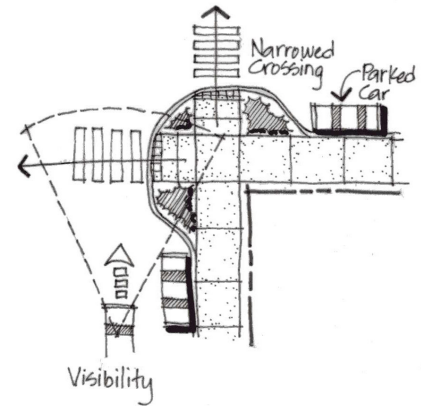


*Speed tables slow traffic.*

## CROSSINGS and INTERSECTIONS (con'td.)

### Curb Extensions

Create curb extensions (also called bulb outs) to reduce street crossing distances at intersections and mid-block crossings and improve sight lines for both pedestrians and drivers. Curb extensions are generally created where there is a parking lane but do not extend into or interfere with bicycle lanes.



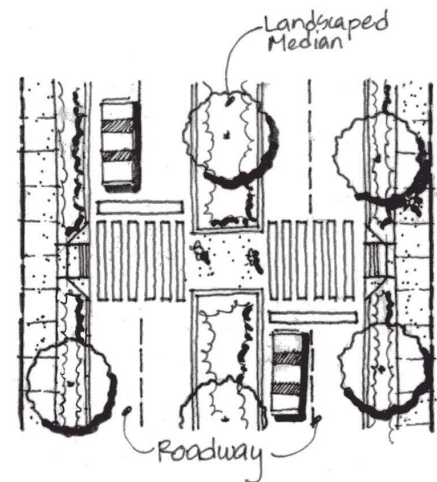
*Curb extensions.*

### Maximum Width

The preferred maximum crossing width for a pedestrian is two-lanes. Streets that are four lanes or more with a paved center left turn lane should be converted to two lanes in each direction with a raised median or refuge area (see next) at crosswalks to enhance pedestrian safety and comfort. This provides slower pedestrians with a place to wait should they need two signal crossing intervals to cross large streets.

### Raised Median or Refuge Area

Provide a raised median or refuge area if there are more than two lanes of traffic in each direction and/or traffic speeds are high. This enables pedestrians of limited mobility to reach the median during one signal crossing interval and finish crossing the street in the second signal interval. To aid pedestrians, the minimum median width should be 5 feet (1.5m) with accessible ramps (see ADAAG guidelines), or a street-level cut-through between raised medians.



*Refuge area provided in median.*



*Raised median.*

## CROSSINGS and INTERSECTIONS (con'td.)

### Resources

#### **Lesson 16 Mid-Block Crossings**

[http://safety.fhwa.dot.gov/ped\\_bike/univcourse/swless16.htm](http://safety.fhwa.dot.gov/ped_bike/univcourse/swless16.htm)

#### **Mid-block crossings or other areas of particular pedestrian safety concern**

Design mid-block crossings with distinct striping. To warn the motorist, use reflective 8-inch (203.2mm) letters on overhead advance warning signs or internally light the sign. These advance warning signs alert drivers that a mid-block crossing is ahead. Add mid-block pedestrian-activated signals where logical, given the destinations along the street.

On-street parking should be held back at least 20 feet (6.1 m) from crosswalks to provide improved sight lines for pedestrians and drivers.

#### **Pedestrian activated signals at canal crossings of arterial streets**

Canal crossings of arterial streets are of particular concern, as they are heavily used by pedestrians for recreation and commuting, yet none of them have pedestrian signals at crossings of arterial streets. Pedestrians frequently choose to jaywalk a cross an arterial street rather than detour to a nearby signalized intersection, even if it is only a short distance away.

The desired signal setup for a canal crossing is a hot (nearly immediate) response. When the pedestrian call actuator button is pushed, the clearance interval should be immediately activated. The minimal wait time should be a strong inducement for pedestrians to wait for the signal to cross. Sight-distance should be adequate to ensure that motorists will see the light in time to stop. Warning signs should be installed on the approaching roadway.

If a pedestrian activated system is used, it is important to place a pedestrian push button in the median. There will be times when some pedestrians start too late, or when slower pedestrians need additional time to cross. In these rare instances, the pedestrian needs to reactivate the signal from the median. There is also an equestrian push button model available, mounted higher than a pedestrian push button, for those areas with a high volume of equestrian traffic.

# TRAFFIC CALMING

There are numerous traffic calming features being designed, used, and studied throughout the country and internationally. The addition of any one or more of these features to a pedestrian facility will make the facility more **comfortable**. Combine several treatments such as speed tables at crosswalks and channelization to slow traffic.

### Corner Radii

Reduce the typical corner radii to slow down turning vehicles. Suggestions include a radius as small as 10 to 15 feet (3 to 4.5m) where residential streets intersect to 25 to 30 feet (7.5 to 9m) where arterial streets intersect.

### Traffic Circles

Place traffic circles at intersections on local and collector streets to slow cut through traffic. If used, traffic circles should be designed keeping in mind persons with visual impairments. It is harder for these pedestrians to know when it's safe to cross the street because they cannot determine from which direction sound is coming.

### Channelization

Narrow the street at the intersection or mid-block location, in order to reduce the width of the roadway to encourage drivers to slow down.

## Resources

### ***The Effects of Traffic Calming Measures on Pedestrian and Motorist Behavior***

[http://www.walkinginfo.org/task\\_orders/to\\_11/Calmtrmt.pdf](http://www.walkinginfo.org/task_orders/to_11/Calmtrmt.pdf)

### ***National Center Bicycling & Walking: Traffic Calming***

[http://www.bikewalk.org/walking/design\\_guide/pedestrian\\_tech/ped\\_traffic\\_calming/index.htm](http://www.bikewalk.org/walking/design_guide/pedestrian_tech/ped_traffic_calming/index.htm)

### ***Institute of Transportation Engineers: Traffic Calming Library***

<http://www.ite.org/traffic/>



*Traffic circles slow vehicular speeds.*



*Channelization slows vehicular speed.*

## TRAFFIC CALMING (con'td.)

### Resources

#### Woonerf

[http://www.walkinginfo.org/de/curb1.cfm?codename=32d&CM\\_maingroup=Traffic%20Calming](http://www.walkinginfo.org/de/curb1.cfm?codename=32d&CM_maingroup=Traffic%20Calming)

#### One more 'woonerf,' albeit flawed, a little less whoosh

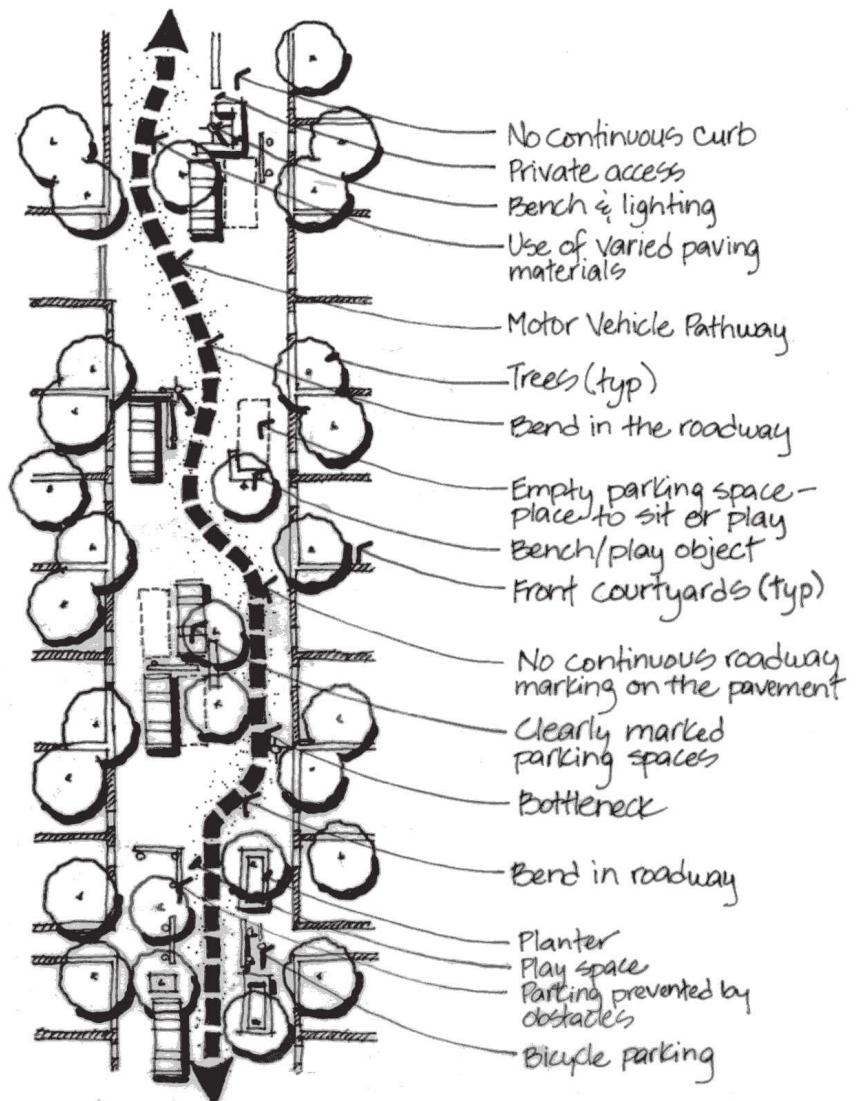
<http://www.urbanplanet.org/forums/lofiversion/index.php/t2002.html>

#### Streets for People Too

[http://www.architectureweek.com/2004/0505/building\\_1-2.html](http://www.architectureweek.com/2004/0505/building_1-2.html)

#### Woonerf

Convert the entire "street" to a living yard, or an area where no segregation is made between motorized and non-motorized traffic, so that pedestrians have full use of the entire area. Commonly woonerfs are narrow streets without curbs and sidewalks, and vehicle speed is reduced by placing trees, planters, parking and similar improvements within the roadway.



Elements of Woonerf.



# SIGNALS

## Safe

To be safe, timing should be based closer to the speed of slower users, not on the average speed of all users. Use a walking speed of 3.0 (0.91m) feet per second or slower to calculate clearance time, based on the walking speed of the elderly, children, and other slower users.

## Comfortable

To be comfortable, crossings should have a Walk/Don't Walk sign, preferably ones that use international symbols rather than words. Countdown or signals with seconds remaining for safe crossings would add to pedestrian comfort level.

## Visual/Auditory Considerations

Use international sign markings at destination facilities.

Where there is a push button, consider using a tactile arrow pointing in the direction of pedestrian travel controlled by the button and the universal tactile and visual symbol of three dots in a triangle on the button, as close to the center as practicable. Audible signals to also help orient the visually impaired.

## Resources

### ***The Effects of Pedestrian Countdown Signals in Lake Buena Vista***

[http://www.dot.state.fl.us/Safety/ped\\_bike/handbooks\\_and\\_research/research/CNT-REPT.pdf](http://www.dot.state.fl.us/Safety/ped_bike/handbooks_and_research/research/CNT-REPT.pdf)

### ***Year 2 Field Evaluation of Experimental "In-Street" Yield to Pedestrian Signs 1999***

<http://www.walkinginfo.org/pdf/r&D/ytpsign.pdf>

### ***The Effects of NO TURN ON RED/YIELD TO PEDS Variable Message Signs on Motorist and Pedestrian Behavior***

[http://www.dot.state.fl.us/Safety/ped\\_bike/handbooks\\_and\\_research/research/](http://www.dot.state.fl.us/Safety/ped_bike/handbooks_and_research/research/)

### ***Use of Animated LED 'Eyes' Pedestrian Signals to Improve Pedestrian Safety***

[http://www.dot.state.fl.us/Safety/ped\\_bike/handbooks\\_and\\_research/research/led\\_eyes.pdf](http://www.dot.state.fl.us/Safety/ped_bike/handbooks_and_research/research/led_eyes.pdf)

### ***Evaluation of Automated Pedestrian Detection at Signalized Intersections***

<http://www.tfhre.gov/safety/pedbike/pubs/00-097.pdf>

### ***Accessible Pedestrian Signals***

<http://www.walkinginfo.org/aps/home.cfm>

## SHADE

In an sunny climate like Arizona, pedestrians seek protection from the sun from late spring through fall. For the other months of the year, people gravitate to filtered or direct sunlight to find a comfort zone in cooler temperatures. The most intense sunlight and temperature extreme in the Desert Southwest occur from May to September, from 12:00 noon to sunset. Shade cover can be provided by either an architectural feature or the canopy of a tree. Trees are recommended as the minimum acceptable protection in this climate.

### Safe

Establish 50 percent shade along pedestrian routes and at gathering places for this intense period (or one 25-foot width canopy tree per 53 feet of sidewalk). Provide some shade year-round on the walkway. In areas that demographically have more elderly pedestrians, provide a minimum 75 percent continuous coverage in the intense summer period.

### Comfortable

Provide 60 percent shade coverage along the walkway (or one 25-foot width canopy tree per 38 feet of walkway).

### Destination

Provide 75 percent shade coverage or greater along the walkway (or one 25-foot width canopy tree per 30 feet of sidewalk).

Shade can be achieved in several ways. Street trees are the most common method of providing shade along walkways. The type of shade provided - whether continuous or concentrated - depends on the orientation of a walkway (see graphic next page) and on how trees are distributed along it. Continuous shade is best achieved



*No shade creates a very harsh environment.*



*Example of 75% shade.*

## SHADE (con'td.)

when trees are equally spaced. Concentrated shade is most appropriate at gathering places or nodes such as transit stops.

Awnings and canopies are another excellent source of shade. Use the clearance minimums (see section on Clearance) when installing them.

When selecting plant materials for shade, plants native to this region of Arizona or similar low-water use, desert plants should be used. See list at left for examples of native or low-water use trees.

### Native or Low-water Use Trees

**Mesquite** (*Prosopis* sp.)

**Palo Verde** (*Cercidium* sp.)

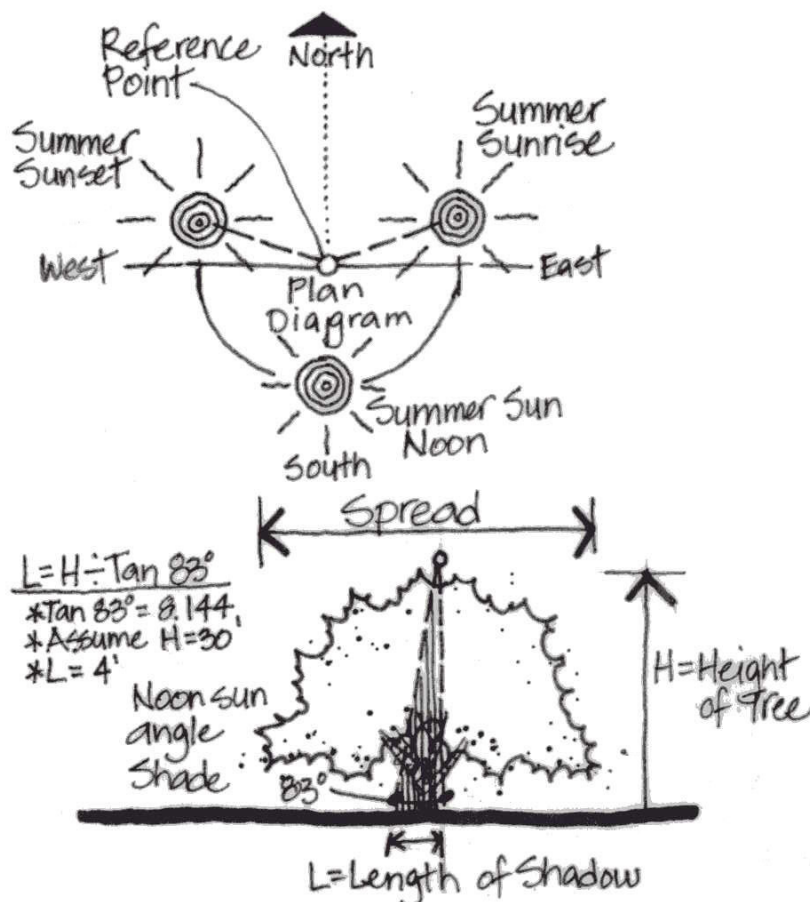
**Acacia** (*Acacia* sp.)

**Ironwood** (*Olneya* sp.)

**Desert Willow** (*Chilopsis* sp.)

**Ebony** (*Pithecellobium* sp.)

**Lysiloma** (*Lysiloma* sp.)



Summer shade at summer solstice - June 21.

## SEATING

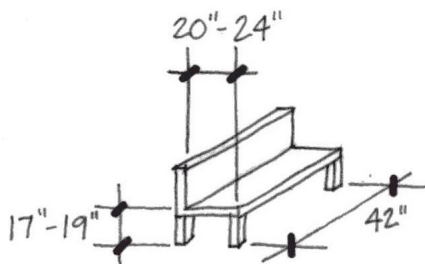
Seating is a primary factor in promoting walking and creating even a minimally comfortable environment. All benches or other seating surfaces should meet the ADAAG guidelines for accessibility, including: a seat surface between 17 and 19 inches (430 and 485mm) above walkway surface, a length of at least 42 inches (1064mm), 20 to 24 inches (510 to 610mm) deep, and have a back support. Seating and other furnishings should not protrude into the pedestrian route of travel (see section on Clearance). Benches should be placed to allow a person in a wheelchair to have immediate adjacent access (3 foot radius minimum). Seating opportunities can be either fixed or moveable and the seating surface should not be so rough that it is uncomfortable to sit or can damage skin or clothing.

### Comfortable

Seating opportunities should be provided at least every 500 feet (152m) along primary pedestrian routes.

### Destination

To be a destination facility, provide multiple seating opportunities, with shade, at the rate of two to three per block.



*Minimum seating dimensions.*



*Public art doubles as seating.*



*Seating can be a bench.*



*Seating can be combined with a wall.*



# AMENITIES

Amenities encourage walking and are appropriate in all pedestrian settings. Where providing amenities increases pedestrian activity, it may be perceived that these facilities are safer, because there are 'more eyes' monitoring activity. Amenities include trash receptacles, phones, drinking fountains, kiosks, and restrooms. The number and type of amenity will probably be highest at destination facilities. All amenities should be accessible per ADAAG guidelines.

### Trash Receptacles

Provide trash receptacles and regular pickup at pedestrian gathering places and nodes such as bus stops and mailboxes.

Provide trash receptacles and regular pickup along major pedestrian routes at nodes and/or 500-foot (152.4m) intervals.

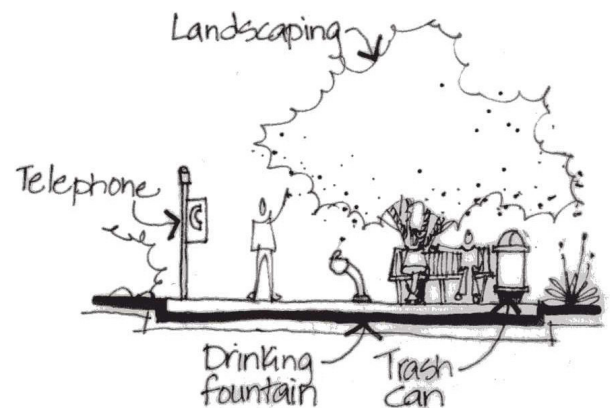
Provide trash receptacles and regular pickup at all **destination** facilities.

### Telephones

Provide emergency telephones at 1,000-foot (304.8m) intervals or at nodes, gathering places, and **destination** facilities.

### Drinking Fountains

Provide accessible drinking fountains at nodes, gathering spots, and **destination** facilities. Refer to ADAAG guidelines for accessibility requirements.



*Typical amenities.*



*A corner kiosk provides information and directions.*



*Convenient trash receptacle.*



*Pedestrians appreciate telephones at transit station.*



## AMENITIES (con'td.)

### Restrooms

Many public restrooms already exist around the Valley at parks, libraries, city halls, and city community centers. Providing wayfinding signs to these facilities would increase the public perception that there are restrooms available.

All **destination** facilities should have restrooms, including directional signs that tells visitors where they are located. Restrooms, where provided, should meet the ADAAG guidelines.



*Shaded gazebos provide respite.*



*Playful interactive water.*



*Convenient public restrooms.*

# SIGNS

Signs can serve many purposes including wayfinding, informational (for motorists and pedestrians), and directional. Signs can be an important element of creating a theme or character at a destination facility. Signs should have a consistent level of contrast (black on white) to assist persons with low vision. Signs with pictures, universal symbols, and universal colors are also highly communicative.

### Wayfinding Signs

Wayfinding signs are not required for a pedestrian area to be safe. However, it encourages walking so they are appropriate in all settings. Wayfinding signs are highly encouraged for destination facilities.

Wayfinding signs are pedestrian-oriented and are generally designed to be a complete system of graphically designed signs. They are at eye-level to a pedestrian, are fairly detailed in design, and provide information at walkway intersections.

### Business Signs

Encourage pedestrian scale signs for businesses. Pedestrian signs are adjacent to the pedestrian walkway (but not protruding into the walkway), are oriented to the pedestrian rather than the vehicle, and provide slow-speed detail in design.

### Directional Signs

Consider a pedestrian scale directory sign system to orient visitors. Locate directories at entrances to the pedestrian area, or at major pedestrian intersections. Directional signs are often one element of an overall wayfinding sign system.



*Wayfinding signs direct pedestrians and establish a theme.*



*Pedestrian level business signs.*

## PUBLIC ART

### Resources

#### ***How Art Economically Benefits Cities***

[http://www.pps.org/info/pub\\_art/art\\_impact](http://www.pps.org/info/pub_art/art_impact)

Public art can and should be included in all pedestrian facilities. Every functional pedestrian feature (sidewalks, bus shelters, benches, etc.) can be designed to incorporate artistic aesthetics. An area theme or character can be expressed through art. Public art certainly makes pedestrian places more comfortable and encourages walking.



*Traditional art.*



*Walls and site furnishings are art.*



*Transit shelters can be 'art'.*

# LANDSCAPE

Trees may be used to provide the minimum level of shade (see section on Shade) and can also serve as a vertical physical separator from traffic (see section on Physical Separation From Traffic). However, plants are also important for softening an urban environment and creating a human scale. Landscape provides visual interest and an opportunity to strengthen or express a local or regional character. Many drought tolerant plants provide seasonal variety, color, texture, and interest, thereby adding to the quality of the pedestrian environment.

When selecting plant materials, plants native to this region of Arizona or similar low-water use, desert plants should be used. There are numerous local sources of information for native plants (see box at left).

The understory to trees, the shrubs and groundcovers, should be free of thorny or spiky plants within 2 feet (0.6m) of the edge of the walkway.

Plantings should not block the walkway or create visibility and/or security issues.

In urban areas, pocket parks and landscaped patios and courtyards adjacent to the pedestrian area are encouraged. Low walls allow for visual access to the pedestrian route without allowing physical access.

## Resources

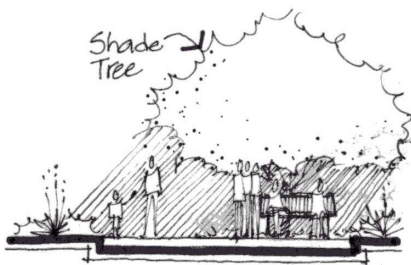
***Low Water-Use Plants for California and the Southwest*** by Carol Shuler

***Plants for Dry Climates*** by Mary Rose Duffield and Warren Jones

***Native Plants for Southwestern Landscapes*** by Judy Mielke

***Landscape Plants for Dry Regions*** by Warren Jones and Charles Sacamano

The ***University of Arizona Cooperative Extension Service***  
at 4341 East Broadway Road, Phoenix, AZ, 85040



Locate landscape to shade seating and walkways.



Low water use trees in an urban setting.



Low water use plantings make a pleasant streetscape.



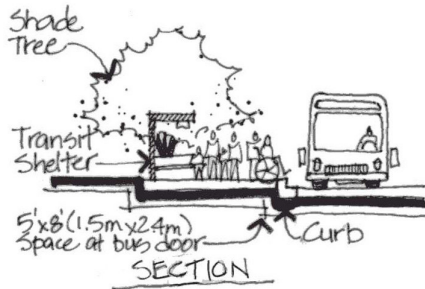
## TRANSIT STATIONS

Transit represents a pedestrian's link to a wider area than that which they would walk. Connections to transit stations should be efficient, logical, and recognizable. Comfort while waiting is also important. Sufficient seating should be determined either by field observations of the individual transit stations, or by using Regional Public Transit Authority ridership data. A mixture of heavy shade, light shade, and no shade should be provided to accommodate all aspects of the climate. Shade should be accessible to all pedestrians.

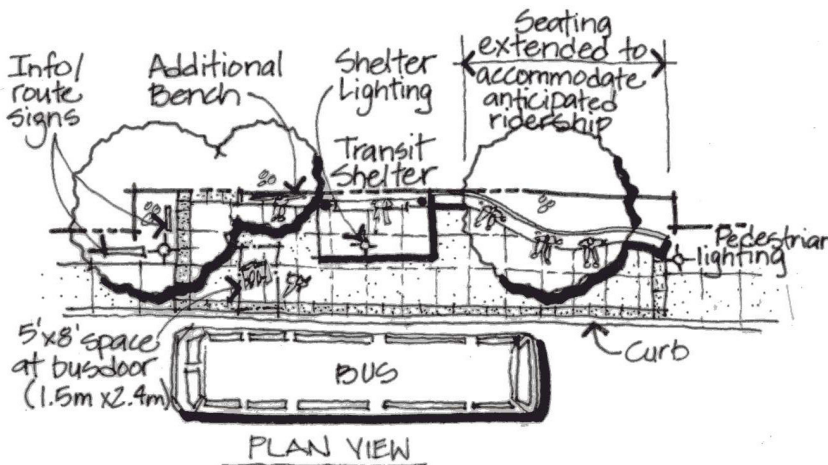
Provide amenities including trash receptacles, bicycle parking, and wayfinding, and directional signs. Transit stations should include telephones, drinking fountains, and restrooms (all accessible per ADAAG guidelines). Route maps and lists should be provided via large posted maps or brochures. These amenities should be placed so as not to block pedestrian travel on the adjacent sidewalk.

Likewise, enough open space should be maintained to safely operate wheelchair lifts.

Provide pedestrian crossings in close proximity to transit stations to discourage jaywalking; people will not take long detours, regardless of how dangerous jaywalking may be. Bus stops should be placed on the far side of intersections and crosswalks to encourage pedestrians to cross behind the bus.



Transit station dimensions.



Transit stations amenities.



Transit stations have route maps and are clearly signed.



Transit stations should have numerous pedestrian amenities.



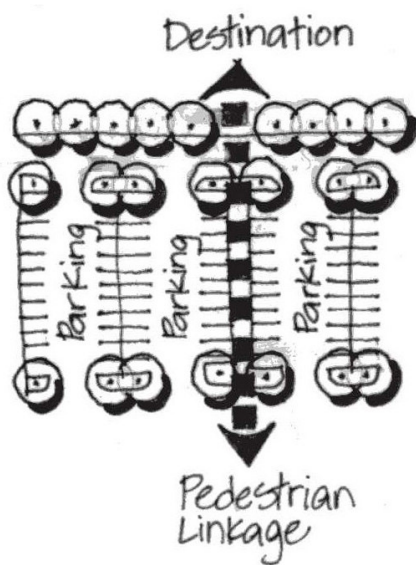
## PARKING LOTS

Locate large parking lots to the rear or side of buildings with direct connections to the pedestrian route and provisions for shade or trees.

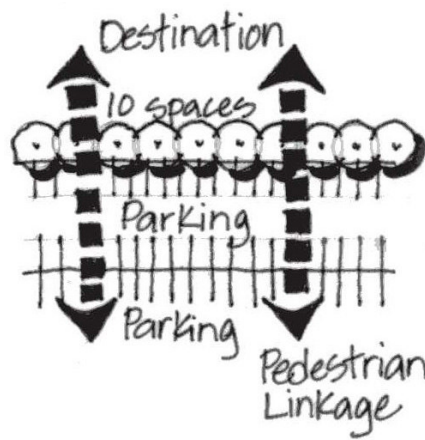
If parking rows are perpendicular to the destination, provide one walkway for each two to four parking rows, separate from the parking drive, to allow for pedestrian access to adjacent areas.

If parking rows are parallel to the destination, provide a walkway at the distance of every ten parking spaces.

Provide off-street parking in landscaped lots with direct pedestrian access to building entries. Access from the parking area to the building entrance should not exceed  $\frac{1}{4}$  mile (0.4km).



Walkways through parking parallel to destination.



Walkways through parking perpendicular to destination.

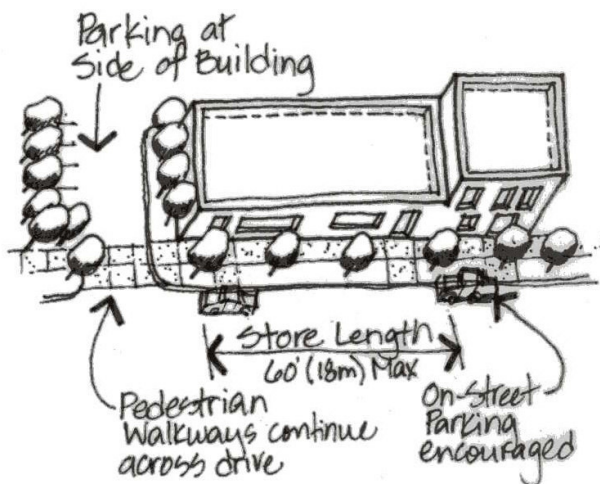
## VARIETY

Variety elements are all the additional features that have been used to create special places or **destinations** or to make facilities more comfortable.

Consider passive or evaporative cooling systems at major gathering places.

Upgrade the walkway surface to reflect the character of the area with decorative paving. Decorative paving could be one element of a cohesive architectural theme. However, keep in mind that the surface should not be uncomfortably rough or bumpy (see Surface/Texture).

Establish a strong sense of entry and architectural cohesion to foster a sense of arrival and special attention to place for the visitor.



Store front length limited; parking on the side.

On longer storefronts, provide windows every 10 feet (3.2m) to help create a human scale.

Limit the length of individual storefronts to no greater than 60 feet (18.3m) to create human scale.

Provide signs with a cohesive architectural/cultural theme.

Support off-site parking by shuttle service.

Prohibit reflective glass next to public walkways to cut down on glare and heat.

For destination facilities, provide a unique theme or motif that unifies it and that is expressed in all enhancements.



Use of brick sets a theme.



A sense of arrival created at a destination.